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PROJECT SPECIFIC PLAN FOR THE EXCAVATION CONTROL AND PRECERTIFICATION OF THE STREAM CORRIDORS STORM SEWER OUTFALL DITCH (SUPPLEMENT TO 20300-PSP-0011)

DEMOLITION, SOIL AND DISPOSAL PROJECT

FERNALD CLOSURE PROJECT
FERNALD, OHIO

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PROJECT SPECIFIC PLAN FOR THE EXCAVATION CONTROL AND PRECERTIFICATION OF THE STREAM CORRIDORS STORM SEWER OUTFALL DITCH (SUPPLEMENT TO 20300-PSP-0011)

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4/7/05

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FERNALD CLOSURE PROJECT

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

A2PIIS3	Area 2, Phase II – Subarea 3
AQL	Aquifer Project Laydown Area
ASCOC	area-specific constituent of concern
ASL	analytical support level
COC	constituent of concern
DOE	U.S. Department of Energy
DSDP	Demolition, Soil, and Disposal Project
EMS	Environmental Monitoring System
FACTS	Fernald Analytical Computerized Tracking System
FCP	Fernald Closure Project
FRL	final remediation level
GC	gas chromatograph
HPGe	high-purity germanium detector
ICP/MS	inductively coupled plasma/mass spectrometry
MDC	minimum detection concentration
MDL	minimum detectable level
mg/kg	milligrams per kilogram
NaI	Sodium Iodide
pCi/g	picoCuries per gram
PID	photo ionization detector
ppm	parts per million
PSP	Project Specific Plan
PWID	Project Waste Identification and Disposition
QA/QC	Quality Assurance/Quality Control
RSS	Radiation Scanning System
RTIMP	Real Time Instrumentation Measurement Program
RTRAK	Real-Time Radiation Tracking System
RWP	Radiological Work Permit
SED	Sitewide Environmental Database
SSOD	Storm Sewer Outfall Ditch
SWRB	Storm Water Retention Basin
TAL	Target Analyte List
V/FCN	Variance/Field Change Notice
WAC	waste acceptance criteria
WAO	Waste Acceptance Organization

1.0 INTRODUCTION

This Project Specific Plan (PSP) describes the data collection activities necessary to support excavation control and precertification activities within the Storm Sewer Outfall Ditch (SSOD). This PSP only represents the specific information regarding soils and sediments within this portion of the Stream Corridors. The general information that is routinely addressed in a PSP can be found in 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*. While this PSP has section headings similar to a full-length PSP, where the information in the section is identical to the information in the General PSP (20300-PSP-0011), a reference to this PSP is made and the information is not repeated.

1.1 PURPOSE

The purpose of this PSP is to provide specific direction regarding the excavation control and precertification of soils and sediments within the SSOD. As shown on Figure 1-1, the major tributaries of the SSOD are primarily located along the western and southern side of the Fernald site. Specific information on reasons to sample, sample location, number of borings, depth intervals, and constituents of concern will be documented according to Section 1.3.

1.2 SCOPE

The areas included within the scope of this PSP are nine discrete excavations within the footprint of the SSOD. These are fully described in Section 2. The schedule for implementation of this PSP is expected to begin in April 2005. Precertification of this area will begin following successful completion of the excavation control process and prior to certification.

This PSP is not considered a work authorization document (for implementation of fieldwork) per SH-0012, Work Permits. Work authorization documents directing the implementation of fieldwork, per SH-0012, may include applicable Environmental Services procedures, Fluor Fernald work permits, Radiological Work Permits (RWPs), penetration permits, and other applicable permits.

1.3 VARIANCE/FIELD CHANGE NOTICE (V/FCN) DOCUMENTATION

The Variance/Field Change Notice (V/FCN) process is utilized to document the occurrence of two situations. The first is to document a change in protocol occurring when a modification in the characterization approach is required [e.g., a different decision process for defining the extent of contamination or for verifying that soil is below-waste acceptance criteria (WAC) or below-final remediation level (FRL) concentrations]. Factors that will be considered under special circumstances include safety of the workers, cost effectiveness, the need for a timely response, and impending weather

The second situation requiring a V/FCN is to provide documentation of sampling and analytical activities and to provide variable information that is dependent upon field conditions and cannot be specified initially in this PSP. As part of the excavation control process, the collection of physical samples will be documented in applicable field logs and with V/FCNs. Additionally, the Data Group Form, FS-F-5157 will be generated per Procedure EW-1021, Preparation of the Project Waste Identification and Disposition (PWID) Report, following the generation of data from the analysis of physical samples. In this situation the use of this V/FCN form is not used to document a change in the protocol of this PSP, but is used to document sampling and analytical activities in order to demonstrate that these activities are compliant with the protocols of this PSP.

If a V/FCN is required, the Characterization Manager will document the change and requirements through the V/FCN process in accordance with Section 7.5 of the *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, 20300-PSP-0011.

1.4 KEY PERSONNEL

Key project personnel responsible for performance of the project are listed in Table 1-1.

TABLE 1-1
KEY PERSONNEL

Title	Primary	Alternate
Department of Energy (DOE) Contact	Johnny Reising	TBD
DSDP Project Manager	Jyh-Dong Chiou	Rich Abitz
Characterization Manager	Frank Miller	Rich Abitz
Area Stream Corridors Lead	Debbie Brennan	Krista Flaugh
RTIMP Manager	Mike Frank	Dale Seiller
Soil Sampling Manager	Tom Buhrlage	Jim Hey
Surveying Manager	Jim Schwing	Andy Clinton
WAO Contact	Linda Barlow	TBD
Construction Manager	Mike Stumbo	Don Goetz
Engineering Lead	Tony Snider	Dave Russell
Laboratory Contact	Heather Medley	Amy Meyer
Data Validation Contact	Jim Chambers	Baohe Chen
Field Data Validation Contact	Dee Dee Edwards	Jim Chambers
Data Management Lead	Debbie Brennan	Krista Flaugh
Radiological Control Contact	Corey Fabricante	TBD
FACTS/SED Database Contact	Kym Lockard	Susan Marsh
Quality Control Contact	Reinhard Friske	Darren Wessel
Safety and Health Contact	Gregg Johnson	Pete Bolig

DSDP - Demolition, Soil and Disposal Project
FACTS - Fernald Analytical Computerized Tracking System
RTIMP - Real Time Instrumentation Measurement Program
SED - Sitewide Environmental Database
WAO - Waste Acceptance Organization

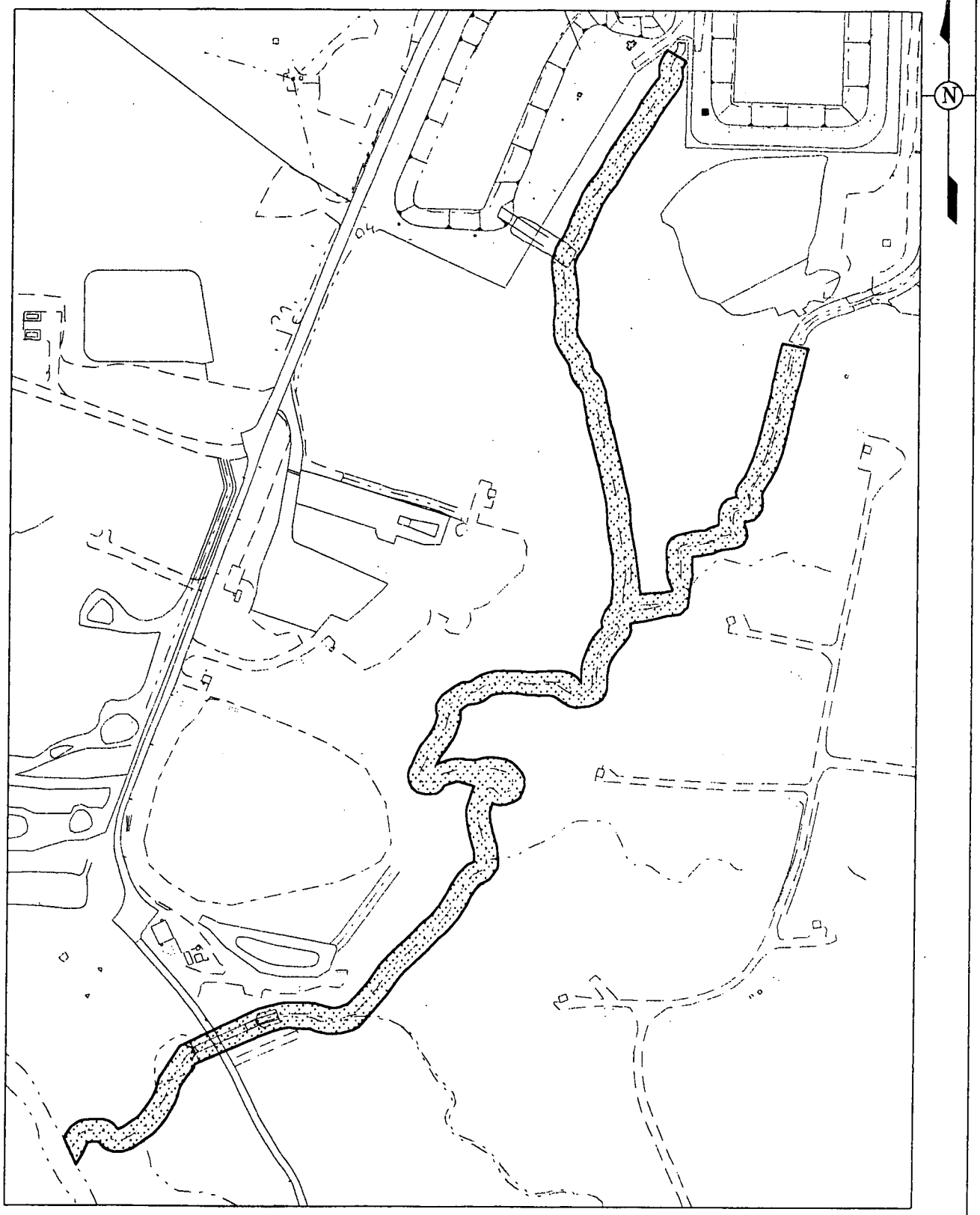

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FIGURE 1-1. MAJOR TRIBUTARIES OF THE STORM SEWER OUTFALL DITCH (SSOD)

2.0 AREA-SPECIFIC WORK REMAINING STATUS

2.1 STORM SEWER OUTFALL DITCH

2.1.1 History

The SSOD is the principal tributary on-site for Paddys Run. Uncontrolled (and potentially contaminated) run-off from the main parking lot and eastern areas of the site enters this drainage ditch at the eastern fork. The western fork periodically receives contaminated run-off from the site's Storm Water Retention Basin (SWRB) during overflow events. The real-time scan of the SSOD performed under 20300-PSP-0008, *Project Specific Plan for Real-Time Scan of Paddys Run Corridor and Associated Drainage Features* identified above-FRL readings for radium-226 on both the east and west banks of the SSOD south of the SWRB.

During predesign of Area 2, Phase II - Subarea 3 (A2PIIS3), an area of elevated radium-226 was discovered in the southeast corner near the Aquifer Project Laydown Area (AQL). This area within A2PIIS3 appears to be contiguous with an above-FRL area in the SSOD. For the purposes of this document, and through certification of the SSOD, the area with elevated radium-226 in the AQL will be included as part of the SSOD. A real-time scan was also completed in this area. For specific information regarding sample locations, above-FRL results, and other factors relating to the excavation process; please refer the 20820-PL-0001, *Excavation Plan for Stream Corridors Storm Sewer Outfall Ditch.*

2.1.2 Predesign

Predesign of the SSOD was completed under the 20300-PSP-0013, *Project Specific Plan for Predesign Characterization of Sediments in Paddys Run and Associated Drainage Features.* Therefore, Section 2.1.2 is not applicable to this PSP.

2.1.3 Excavation Control

2.1.3.1 ASCOCs

Several constituents of control (COCs) were found to exceed the FRL during the characterization process. Table 2-2 and Figure 2-1 identify the areas to be excavated and the COC driving each excavation. In areas where radiological COCs were identified as above-FRL, excavation will be controlled through the use of real time measurement systems. Where non-radiological constituents are the above-FRL COCs (i.e., arsenic), excavation will be controlled through the use of physical sampling.

The evaluation of the list of preliminary area-specific constituents of concern (ASCOCs) from 20300-PSP-0013, *Project Specific Plan for Predesign Characterization of Sediments in Paddys Run and Association Drainage Features* and 20450-PSP-0005, *Project Specific Plan for the Predesign of Area 2,*

Phase II - Subarea 3 (Supplement to 20300-PSP-0011) resulted in the following list of primary and secondary COCs for excavation control of the SSOD. The list of primary COCs is unchanged and will be carried through to certification. The secondary COC list is reduced to arsenic as it is the only secondary COC that drives any portion of the excavation (see Section 2.1.3.3).

Primary COCs

Total Uranium
Radium-226
Radium-228
Thorium-228
Thorium-232

Secondary COCs

Arsenic

The above list of COCs will be used to verify that the planned remedial excavation limits are sufficient to capture the above-FRL contamination during excavation. Note that the entire ASCOC list applicable to this area will be reevaluated during the certification design process to determine which of the ASCOCs will be carried into certification. As always, this evaluation as well as the justification for the retention or elimination of any COC will be presented in the CDL for agency review and approval.

2.1.3.2 Excavation Types

There is no historical evidence of sediments and/or soil exceeding WAC levels within the Stream Corridors' sediments and none was found during the predesign phase of this investigation. Therefore, the types of excavation identified for the SSOD will be for above-FRL areas (driven by total uranium, radium-226, thorium-232, and arsenic). Real-time scanning for total uranium, radium-226, and thorium-232 will be performed for above-FRL radiological areas per 20300-PSP-0011, Section 5.1. Physical sampling for all secondary COCs (arsenic) will be performed per 20300-PSP-0011, Section 5.2. Tables 2-1 and 2-2 list the excavation control COCs, their limits, and above-FRL areas within the SSOD. Tables 2-3 and 2-4 address the excavation monitoring and sampling requirements, as well as the physical sample volume, preservation requirements, and analysis information. See Table 2-5 for the Target Analyte List (TAL).

2.1.3.3 Locations

The areas identified as being above-FRL (traveling north to south) along the SSOD are summarized in Table 2-2 and illustrated in Figure 2-1.

2.1.4 Precertification

Precertification will be performed per 20300-PSP-0011, Section 3.0 and Section 6.0.

TABLE 2-1
LIMITS FOR SSOD EXCAVATION CONTROL COCs

Primary COCs	FRL	MDC	Secondary COCs	FRL	MDC
Total Uranium	82 mg/kg	8.2 mg/kg	Arsenic	12 mg/kg	1.2 mg/kg
Radium-226	1.7 pCi/g	0.17 pCi/g			
Thorium-232	1.5 pCi/g	0.15 pCi/g			

MDC - minimum detectable concentration
mg/kg - milligrams per kilogram
pCi/g - picoCuries per gram

TABLE 2-2
ABOVE-FRL AREAS AND COCs FOR SSOD

Above-FRL Area	Location	Contaminant Driving Excavation	Depth Interval
1	An isolated total uranium contamination area at the northernmost end of the SSODs western tributary between the east and west SWRBs.	Total Uranium	0.0-1.5'
2	A largely contiguous area of multiple radiological isotope contamination beginning south of the west SWRB and ending downstream from the confluence of the western and eastern tributaries of the SSOD.	Radium-226	0.0'-3.0'
3	An isolated thorium-232 contamination area to the east of the A2PII - Subarea 3 Trailer Complex Area.	Thorium-232	0.0'-1.0'
4	A large area including several radiological contaminants in the SSOD and radium-226 contamination formerly included as part of A2PII - Subarea 3 Aquifer Project Laydown Area.	Radium-226	0.0'-2.0'
5	An isolated radium-226 contamination area east of the former Active Flyash Pile.	Radium-226	0.0'- 0.5'
6	An isolated radium-226 contamination area east of the former Active Flyash Pile.	Radium-226	0.0'-1.0'
7	An area containing several radiological contaminants east of the A2PII - Subarea 3 South Field Extraction System Valve House Area.	Radium-226	0.0'-3.0'
8	An isolated radium-226 contamination area southeast of the A2PII - Subarea 3 South Field Extraction System Valve House Area.	Radium-226	0.0'-1.0'
9	One isolated non-radiological contamination area (arsenic) occurring just east of the confluence with Paddys Run Creek.	Arsenic	0.0'-0.5'

TABLE 2-3
EXCAVATION MONITORING/SAMPLING REQUIREMENTS FOR SSOD

Type of Contamination Zone	Types of Samples/Measurements and Data Use		
	Sideslope of Each Excavation Lift	Floor of Each Excavation Lift	Floor/Sideslope at Design Depth for Contamination Zone
Above-FRL Uranium	• NaI for Uranium	• NaI for Uranium	• NaI for Uranium WAC/FRL*
Above-FRL Radium-226	• NaI for Radium-226/ Uranium	• NaI for Uranium	• NaI for Radium-226/ Uranium
Above-FRL Thorium-232	• NaI for Thorium-232/ Uranium	• NaI for Uranium	• NaI for Thorium-232/ Uranium
Above-FRL Arsenic	• Physical Sample for Arsenic • NaI for Uranium	• NaI for Uranium	• Physical Sample for Arsenic

* During sodium iodide (NaI) uranium WAC scan, the data collected will be evaluated later for precertification purposes by reviewing concentrations of thorium-232 and radium-226, as well as thorium-228 and radium-228 based on equilibrium, in comparison to their respective FRLs.

TABLE 2-4
PHYSICAL SAMPLE ANALYTICAL REQUIREMENTS FOR SSOD

TAL*	Method	Sample Matrix	ASL	Preservation	Holding Time	Container	Minimum Sample Mass/Volume
TAL A (metals)	ICP/MS	Solid	B	Cool 4°C	6 months	Appropriate sized Glass or plastic with Teflon-lined lid	50 grams

* One sample per release shipped to an off-site laboratory shall be identified on the Chain of Custody/Request for Analysis forms as "designated for laboratory Quality Control (QC)".

ASL - analytical support level
ICP/MS - inductively coupled plasma/mass spectrometry

TABLE 2-5
EXCAVATION CONTROL TARGET ANALYTE LIST FOR SSOD

TAL A

Analyte	FRL	MDL (soil)
Arsenic	12.0 mg/kg	1.2 mg/kg

MDL - minimum detectable level

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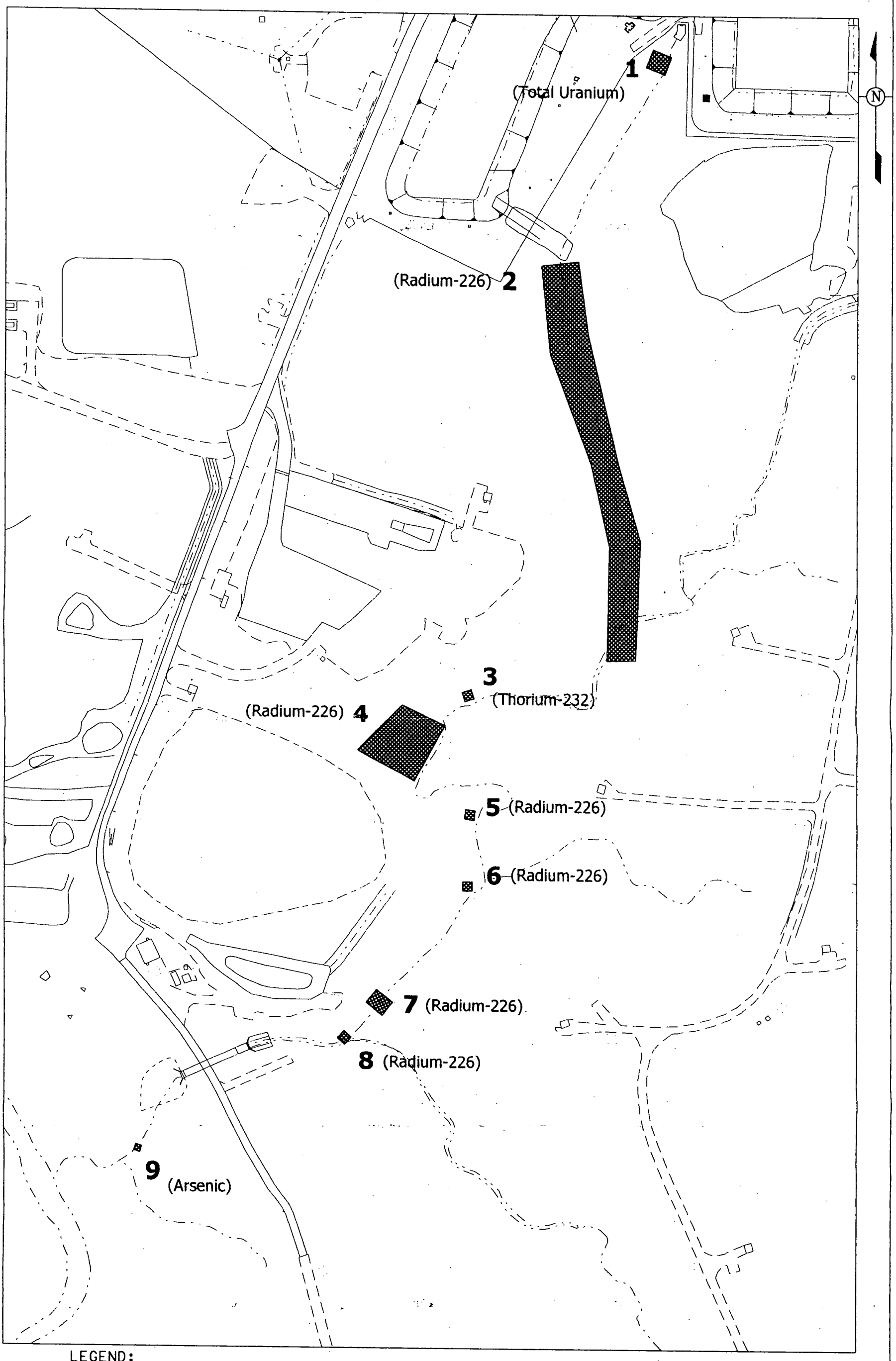

FIGURE 2-1. STORM SEWER OUTFALL DITCH - EXCAVATION CONTROL AREA

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3.0 INSTRUMENTATION AND TECHNIQUES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

3.1 MEASUREMENT INSTRUMENTATION AND TECHNIQUES
3.1.1 Real-Time
3.1.1.1 Sodium Iodide Data Acquisition (RTRAK, RSS, GATOR, EMS)
3.1.1.2 HPGe Data Acquisition
3.1.1.3 Excavation Monitoring System
3.1.1.4 Radon Monitor
3.1.2 Surface Moisture Measurements
3.2 REAL-TIME MEASUREMENT IDENTIFICATION
3.3 REAL-TIME DATA MAPPING
3.4 REAL-TIME SURVEYING

4.0 PREDESIGN

The predesign investigation of the Stream Corridors was completed per 20300-PSP-0013, *Project Specific Plan for Predesign Characterization of Sediments in Paddys Run and Association Drainage Feature* and 20450-PSP-0005, *Project Specific Plan for the Predesign of Area 2, Phase II – Subarea 3 (Supplement to 20300-PSP-0011)*

5.0 EXCAVATION CONTROL MEASURES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

5.1 EXCAVATION DESIGN CONTROL REQUIREMENTS
5.1.1 Contamination Zone
5.1.2 Floors, Roads and Foundations
5.1.3 Real-Time Lift Scans
5.1.4 Above-WAC Lift Scans
5.2 ORGANIC SCREENING AND PHYSICAL SAMPLING REQUIREMENTS
5.2.1 Above-WAC Photoionization Detector (PID)/Gas Chromatograph (GC) Screening
5.2.2 All Other Physical Sample Requirements
5.2.3 PID Screening and Physical Sampling Procedures
5.2.4 Physical Sample Identification

6.0 PRECERTIFICATION

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

6.1 INITIAL PRECERTIFICATION NaI SCAN AT BASE OF DESIGN GRADE
6.2 PRECERTIFICATION HPGE MEASUREMENTS IN 20 PPM FRL (URANIUM) AREAS
6.3 PRECERTIFICATION HPGE MEASUREMENTS IN 82 PPM FRL (URANIUM) AREAS
6.4 DELINEATING HOT SPOTS FOLLOWING PRECERTIFICATION HPGE MEASUREMENTS

7.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

7.1 QUALITY CONTROL SAMPLES - REAL-TIME MEASUREMENTS AND PHYSICAL SAMPLES
7.2 DATA VALIDATION
7.2.1 Physical Sample Data Validation
7.2.2 Real-Time Data Verification/Validation
7.3 APPLICABLE DOCUMENTS, METHODS AND STANDARDS
7.4 SURVEILLANCES
7.5 IMPLEMENTATION AND DOCUMENTATION OF VARIANCE/ FIELD CHANGE NOTICES (V/FCN)

8.0 SAFETY AND HEALTH

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

9.0 EQUIPMENT DECONTAMINATION

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

10.0 DISPOSITION OF WASTES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

11.0 DATA AND RECORDS MANAGEMENT

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

11.1 REAL-TIME
11.2 PHYSICAL SAMPLES